2006-07 Idaho 8th Grade Direct Mathematics Assessment

**Development Toward Proficiency of Basic Skills**

# 8th GRADE MAIN RANGEFINDER 2

**It is important that you show or explain how you solved the problems on this assessment. If you use a calculator, show how you set up the math.**

**1.** You are going to the movies. The price of the ticket is $7.50, which includes sales tax.

**Concessions (sales tax included)**

| | |
|---|---|
| Popcorn | $5.25 per bucket |
| Pop | $2.50 each |
| Candy | $2.25 each |

a. What is the cost for six people to go to the movie? *Show or explain how you found your answer.*

7.50
x 6
$45.00

b. What is the total cost for six people to go to the movie **and** for each to have one bucket of popcorn, one pop, and one candy? *Show or explain how you found your answer.*

5.25 x 6 = 31.50
2.50 x 6 = 15.00
2.25 x 6 = 13.50

45.00
31.50
15.00
+13.50
$105.00

c. The price of the six tickets is what fraction of the total cost for the six people, including concessions? *Show or explain how you found your answer.*

$\frac{45}{60} = \frac{3}{4}$

**Limited Understanding Of The Situation**

d. If you go to a matinee movie, you receive a 15% discount on the price of a ticket. What is the price of **one** matinee ticket? *Show or explain how you found your answer.*

$\frac{15}{100}$ $\frac{7.50}{1}$ 7.50 ÷ 15 = 0.5

$\boxed{5.00}$

$\frac{3}{20}$ $\frac{7.50}{1}$

**Read problems 2, 3, 4, and 5 on this and the next two pages.**
**Select three problems to answer. Answer ALL of the parts of the three problems you select to answer.**
**Cross out the one problem that you do not choose to answer.**

**2.** Data was collected from 7th grade students who completed the Idaho Standards Achievement Test (ISAT) in the fall and spring. The numbers below represent points gained.

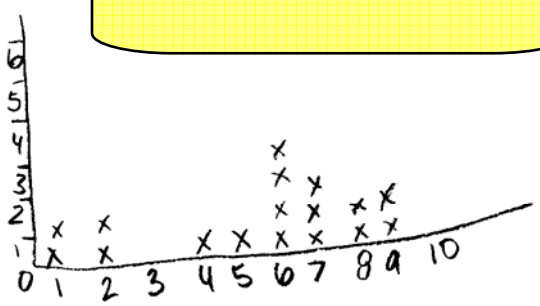
**Points Gained Per Student**

~~1~~, 0, ~~1~~, ~~0~~, ~~0~~, ~~7~~, ~~2~~, ~~5~~, ~~0~~, ~~1~~, ~~0~~, ~~6~~, ~~4~~, ~~8~~, ~~2~~, ~~8~~, ~~1~~, ~~8~~

a. Graph or plot the data in the space provided. Include appropriate labels.

| lot | 10 |
|---|---|
| | 11 |
| | 22 |
| | 4 |
| | 5 |
| | 6666 |
| | 777 |
| | 88 |
| | 99 |

**Understanding the Situation**




b. How many students gained <u>more than</u> six points? *Show or explain how you found your answer.*

7 students

you count how much is more or under six

c. Find the mean, median, mode, and range for the given data. *Show or explain how you found your answers.*

~~0~~, ~~1~~, ~~1~~, ~~2~~, ~~2~~, ~~4~~, ~~5~~, ~~6~~, ~~6~~, ~~6~~, ~~6~~, ~~7~~, ~~7~~, ~~7~~, ~~8~~, ~~8~~, ~~9~~, ~~9~~

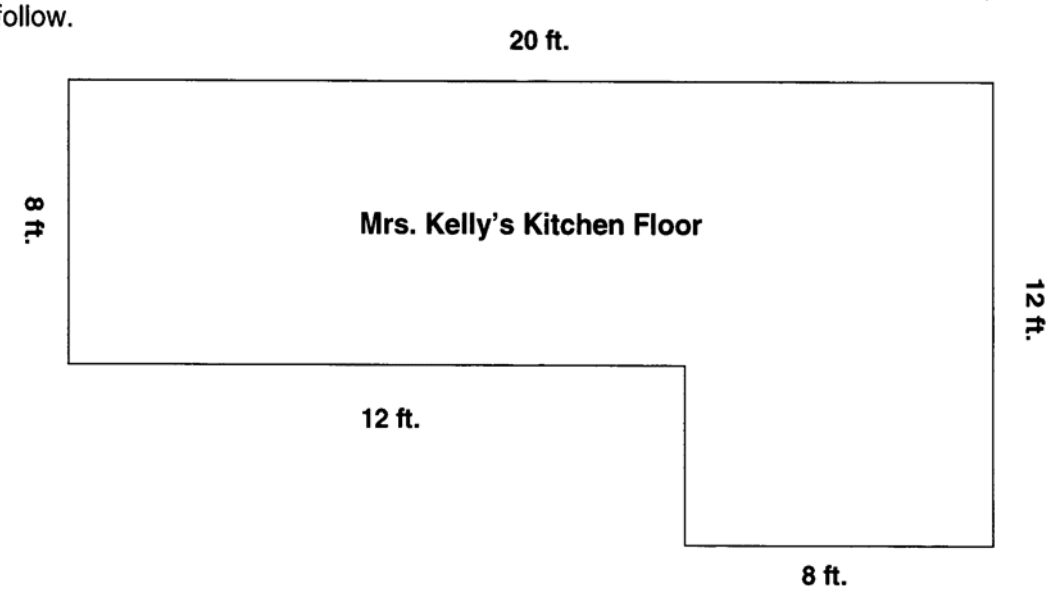
mean = $5.\overline{2}$
median = 6
mode = 6
range = 9

**Adequate Solutions and Processes**

d. Using the information above, which is the best indicator (mean, median, or mode) of the students' performances? **Why?** *(Show or explain how you found your answer.)*

mode because you can see it while your graphing it that it occurs the most

**3.** Mrs. Kelly wants to tile her kitchen floor. Use the diagram below to answer the questions that follow.




a. What is the total area that needs to be tiled? *Show or explain how you found your answer.*

20
8
12
8
× 12

184,320 ft²

**Inappropriate Processes**

b. If the tiles are 6-inch squares, how many tiles will Mrs. Kelly need to purchase? *Show or explain how you found your answer.*

30720
6 ) 184320

30,720 tiles

c. Each box contains 35 tiles. How many boxes will Mrs. Kelly need to purchase? *Show or explain how you found your answer.*

35 ) 30720

878 boxes

**Basic Use of Thinking Skills**

d. If each box costs $52.50, what will be the total cost of the tiles? What would be the cost including a 5% sales tax? *Show or explain how you found your answers.*

878.00
× 52.50

46,095 w/out

2,304.75 w/ sales tax

**4.** Jamie's cell phone company, XYZ Cellular, charges $20.00 per month plus 5 cents for each minute of calling time.

a. Use *m* to represent the number of minutes. Write an expression for Jamie's total monthly cell phone charge. *Show or explain how you found your answer.*

20.00 x m+5

b. How much will Jamie have to pay in October if she talks for one hour and 50 minutes? *Show or explain how you found your answer.*

c. Jamie is thinking about changing to Lakeside Cellular, which charges 20 cents per minute of calling time and no monthly fee. How much would her October charge have been if she had been using this new company? *Show or explain how you found your answer.*

d. For October, which of these two companies would save her the most money? How much money would she save? *Show or explain how you found your answers.*

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**5.** Each student in Mrs. Smith's class received a bag of candy. They counted the candy in their bags. Joe had 50 candies, Sally had 62, David had 55, Heather had 57, and Tia had 60.

a. Joe had the following candies in his bag: 7 brown, 5 orange, 6 yellow, 10 red, 8 green, and 14 blue. What is the probability that Joe will pick a red M&M out of his bag? *Show or explain how you found your answer.*

$\frac{1}{10}$

14
7
5
6
10
8

**Limited Process Development**

b. What is the probability that the first candy Joe picks out of his bag will be yellow **or** green? *Show or explain how you found your answer.*

$\frac{1}{14}$

c. If Joe eats one red candy, what is the probability that the next candy he picks out of his bag will be brown? *Show or explain how you found your answer.*

$\frac{1}{7}$

56
− 1
49